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Timing of Illness and Labor Market Outcomes*

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Abstract

The extent to which an illness affects average hourly wages and annual hours worked by the individual is examined in this paper. The Health and Retirement Survey data are used to compile a profile of the employment spells and health experiences over the lifetime of the individuals surveyed. Using regression analysis, these profiles are used to estimate the impact of temporary and permanent illnesses on the wages and hours worked of individuals. In addition, regression analysis is used to test whether the time of initial onset of illness influences the magnitude of the health effect and to determine if males and females are similarly affected by health problems. Permanent health conditions are found to have lasting negative effects on the average hourly wage earned and the annual hours worked by an individual. Females are found to have larger negative reductions in their wages than men due to the presence of permanent health conditions, while males decrease the number of hours they work by a larger amount than women due to these conditions. Temporary illnesses are found to have very little impact on wages. However, individuals whom reported having a temporary illness in the past are found to work more hours than continuously healthy individuals.

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Introduction

Previous economic studies provide convincing evidence that health has extensive effects on labor force participation decisions, wages, and hours worked by individuals. However, there is no consensus on the magnitude of the role of health on these variables. Few studies have looked at how health influences labor market outcomes across different stages in the working life. Instead, most work has focused on how health influences market earnings at a particular point in time. Often research has focused on older white males and how the decision to retire is influenced by health.[1] However, as Curie and Madrian (1999) point out, the extent to which health affects women and younger males in the workforce has been largely ignored.

While the relationship between retirement decisions and health is an important issue, how health affects individuals in the early stages of their career can have interesting and important consequences. Individuals who are younger than 50 may make very different adjustments to random health shocks than individuals approaching retirement age. Based on the timing of the initial onset or diagnosis of a health condition and the expectations of the progression of the illness, an individual may choose to take different actions. For example, individuals could retrain or obtain education to gain skills to diminish the extent to which illness interferes with work requirements; increase their current hours in the labor market in order to build up savings to use when they become too ill to work in the future; remain at work in the same job; continue working but switch occupations and/or employers; or exit the labor force temporarily or permanently.[2] The ability of an individual to adjust to health problems will likely have spillover effects into society by affecting the number of people on disability insurance, the length of time an individual is on disability insurance, and the number of people enrolled in other social programs such as Medicaid and Social Security.

[1] See Diamond and Hauser, 1984; Bazzoli, 1985; Sickles and Taubman, 1986; Blau, Gilleskie and Slusher, 1997; Bound, Schoenbaum, Stinebrickner, and Waidmann, 1998.

[2] It is plausible that an individual in the early part of his worklife when he falls ill may retrain or switch occupations such that the illness does not interfere with the ability to work, whereas a similar individual in the later part of his worklife might choose to remain in the same occupation or simply retire early.

If individuals react to health changes according to the timing of the onset of illness, policymakers may want to refocus efforts to aid different groups of the population in different ways. For example, consider the hypothesis that young workers are able to make training and education choices to minimize adverse labor market outcomes when faced with a negative health shock. If this is true, policymakers may be able to help this group gain access to job-skills training programs or make more funds available for education and public-funded vocational rehabilitation programs rather than fund a cash transfer disability program that the individual relies on for the duration of her lifetime.

In their comprehensive review of the literature on the relationship between health and the labor market, Curie and Madrian (1999) note that relatively few studies have investigated the extent to which health affects labor market outcomes of both men and women in the same framework.[3] The lack of comparable empirical work across the sexes makes it difficult to make generalizations about gender differences and the consequences of health shocks. Often the impact of health on labor market outcomes for women has been ignored with a common explanation for their omission being that women do not have strong labor force attachment patterns as they migrate in and out of the labor market for child-rearing activities. While it is true that women have more sporadic employment spells than men, over the last two decades a larger percentage of women have participated in the labor market and women have become a substantial portion of the workforce. For example, according to the Bureau of Labor Statistics in 1950 approximately 32% of women participated in the labor market. By 1997, the labor force participation rate of women almost doubled to approximately 60%. (U. S. Statistical Abstract, 1999)This increase in the labor force participation of women coupled with the growing number of households headed by females demonstrates the importance of a study that examines how both women and men fare in the labor market when faced with health problems.

[3] Loprest, Rupp, and Sandell (1995) find that men and single women are more likely to leave the labor market when faced with a disability than married women. Etter (1997) finds evidence of less stigma effects for women exiting the labor force than men leading to less reporting bias among women. Luft's (1975) study of health and labor market outcomes will be discussed in a later section of the paper.

The purpose of this paper is to use lifetime histories of employment and health experiences of an individual to get improved estimates of the longitudinal impact of health on the hourly wages earned and annual hours worked by individuals. The retrospective information regarding health will not only be used to distinguish between individuals with a history of being healthy or unhealthy, but will also allow for the distinction between temporary and permanent health problems. The current employment data and the reported age of the individual when the health shock first arose allows for an analysis focusing on the impact of the timing of health problems on wage and hours the individual works. This analysis will also provide separate estimates of the impact of health for males and females to allow for comparisons across gender.

Previous Literature

Previous research has shown that health has a substantial influence on a variety of labor market decisions and outcomes such as wages, earnings, labor force participation, hours worked, retirement, job turnover and benefit packages.[4] However, both Curie and Madrian (1999) and Chirikos (1993) in their comprehensive reviews of the relationship between health and the labor market report that while health has considerable impacts on labor market outcomes, the estimated magnitude of the health impact varies across studies. Initially, the majority of the research explored how health effects the labor market outcomes in a given year. More recently, attempts to look at the longitudinal affects of health have been made, but these studies tend to be limited to a ten-year interval. The literature most relevant to this paper will be discussed.

Luft (1975) uses the 1967 Survey of Economic Opportunity (SEO), a national household survey of men and women ages 18-64 residing in the United States, to estimate the effect of poor health on earnings for different subsets of the population. First, individuals are separated into the following groups: white males, white females, black males and black females. The four groups are further categorized as healthy if they reported no health problems and unhealthy if reported some health difficulty. Regressions are estimated for each dependent variable (hours worked, labor force participation, earnings for the current and previous year) on the sample of healthy adults. The estimated coefficients from the healthy sample are then

applied to the characteristics of the population that reported health difficulties. This method produces estimates of what the earnings would have been if the sick were in fact healthy after adjusting for differences in the characteristics (such as education and experience) of the two populations.

Luft's results lend support to the idea that the ill have lower rates of labor force participation due to health status and not other observable characteristics. Additionally, the results provide evidence that poor health has different consequences by sex and race. The adverse effects of poor health on annual earnings are larger for men than women and greater for whites than blacks in absolute terms. However, once base earnings are considered women experience a larger relative decline in earnings than men, and black men suffer a greater relative loss than white men. It is important to note that the economic climate for blacks and women have changed since the year of Luft's data, 1967. Thus, a more up-to-date analysis using more current data to determine if health impacts males and females differently is warranted.

Chirikos and Nestel (1985) examine a ten-year longitudinal profile including a retrospective health history of individuals and current economic welfare of individuals using data from the National Longitudinal Surveys (NLS) of Older Men in 1976 and Mature Women in 1977. Health histories are used to classify a worker as being continuously in poor health, continuously in good health, improving in health, or diminishing in health.

Chirikos and Nestel use a two-equation model to determine the extent of the relationship between earnings and health. First, they use regression analysis adjusting for sample selectivity biases to estimate wages as a function of human capital characteristics (other than health) and health history dummy variables. Then, using tobit analysis, hours of work are estimated as a function of the estimated wage, health history dummies and other variables likely to influence labor supply in a particular year (other family income, age, number of kids, etc.). They find that health problems incurred within the ten-year period had lasting negative impact on the current labor market outcomes. Those continuously in poor health had significantly lower wages and worked fewer hours than continuously healthy individuals. Individuals who had improving health status also had significantly lower wages, but the number of hours worked by this group

[4] See Mitchell and Burkhauser (1990), Chirikos and Nestel (1981, 1984, and 1985), Stern (1996), Bartel and

was significantly greater than the continuously healthy individuals. Individuals experiencing depreciating health status had lower earnings and worked fewer hours than healthy individuals. These results suggest that persistent health status and temporary changes in health over time have different implications in the labor market.

Charles (1996) uses Wave XXII (1968-1989) of the family-individual file of the Panel Study of Income Dynamics (PSID) data to examine the impact of health over a longer period of time than previous work. The sample is limited to male heads of households present for at least 3 years in the survey while between the ages of 22 and 64. Workers were classified as non-disabled if they always reported no presence of a work limitation. Individuals who ever gave a positive disability report were categorized as the disabled population. Charles uses a measure of age of onset to examine if the timing of a health condition affects the magnitude of the affect of health on wages, hours worked and annual earnings. For the disabled individuals, age of onset was taken as the survey response when reported or as imputed by Charles when not reported.

In Charles' empirical analysis, three dependent variables are used to measure the impact of health in the labor market—the log of annual earnings, the log of hourly earnings and the number of hours worked. Regression analysis is used to measure the extent to which the expected annual earnings of disabled workers differ from the estimated amounts these workers would have earned if they had remained healthy for the ten years prior to and the ten years following the onset date of illness. Charles finds a drop in annual earnings in the year prior to the onset period. At the date of onset, the annual earnings for the disabled are 20% lower than their expected levels. For the two years following the onset date, Charles finds a period of recovery cutting the amount of annual lost earnings in half. Annual earnings then fluctuate the next 8 years after onset. After 10 years (the end of the time interval studied) annual earnings are an estimated 15% lower than expected if the individual would have remained healthy. Charles finds that hourly wages and annual hours of work follow similar patterns as annual earnings, with the decrease in hours worked being large and permanent.

Taubman (1979, 1986), Parsons (1977, 1980 and 1982), and Bound, Schoenbaum and Waidman (1995, 1996).

Charles then constructs a fixed effects model using five variables to account for trends in earnings before and after onset of wages and using an indicator variable to divide men into different categories according to education levels, race, and age of onset. The age of onset variable is measured as the age of onset of limiting health condition (as reported or imputed) minus the mean age of onset over all disabled men. Charles finds that the older the person at the age of onset of illness, the larger the instantaneous drop in wages and the smaller the recovery in years following onset. Annual hours of work estimates show similar patterns. However, the younger cohorts recovery in hours worked almost entirely make up for the immediate loss in hours worked. Although there is an overall modest upward trend in hours worked in the recovery period, ten years after the onset of illness the older cohorts spend approximately 100 hours less at the workplace than would have been expected if they had remained healthy.

While the last two studies discussed have looked at health and labor market outcomes for ten years of the individuals' worklife, the literature is still void of how earnings may be affected after longer periods of time has elapsed since onset. If the illness is a temporary condition, it may take years for a worker to signal that their health stock has improved. If the illness is chronic or permanent, the adaptation of the worker to his or her limits may not be fully realized within 10 years. The individual may switch industries and/or occupation, which could take a considerable amount of time to search for appropriate alternative employment, and time will elapse before the individual gains experience and tenure in the new chosen line of work. Thus, it is a natural progression to look at how a shock in the health status not only impacts wages and hours worked at the time of the onset and the ten years after onset, but also at later years in the lifetime. This paper will include measures for the age of onset of illness and examine the extent to which health shocks have lasting effects on wages and hours worked. With the retrospective aspect of the data (discussed in detail later in paper), the age of onset of illness occurs more than ten years prior to the wage and hours observations for some of the individuals in the sample. In fact, if the illness was present at very early ages of an individual's life and the individual has been active in the labor market, it is possible that the difference between the age of onset and the wage or hour observation is as large as 40-50 years.

Theoretical Model

Changes in health will affect labor market decisions and decisions regarding how to allocate resources in a variety of ways. To formalize the relationship between health and labor market performance in a given period of time, it is useful to consider how the human capital stock and human capital investment patterns of an individual are altered when the individual suffers a health shock. It is reasonable to expect that the human capital stock will suffer a "hit" or have an unexpected setback in the level of human stock previously built as the health condition wipes out the ability to perform a task. Health can further impact the path of the investment in human capital. The degree to which the human capital investment path is altered is likely to depend on the timing of the illness such that the timing directly influences the expected remaining worklife. Additionally, the expectation of how long the illness itself will last will be factor in the degree to which a health shock changes the human investment and earnings path of the individual.

Mincer (1974) formalized a well-known human capital earnings function coined as the Mincer earnings equation to explain the life cycle "earnings profile" (variation of earnings with age during the worklife) of men continuously employed in the labor market. Essentially, the level of earnings of an individual are derived as a function of the human capital stock accumulated by the individual through formal schooling and years of experience in the labor market less the depreciation of those skills over time. Theoretically, individuals maximize expected lifetime earnings by choosing the number of years of schooling and time allocated to informal training. In determining this investment plan, the present value stream of lifeteime earnings is weighed against the costs of accumulating the human capital. Therefore, larger portion of the human capital investment is done in the early segments of the worklife as the opportunity cost is lower at this time and the expected number of years remaining in the worklife to reap the benefits of the human capital accrued is greatest. In the later stages of the worklife it is expected that the individual invests less in human capital. In fact, it is plausible that age-earnings profiles slopes downward in the later stages of an individual's career when the value of the depreciated human capital stock is greater than the increase in the human capital due to investment.

Mincer and Polachek (1974) built on the basic Mincer framework to model the earnings of women as a function of their human capital investments. While men are likely to have strong attachments to the labor market and to be employed continuously with few spells of non-employment, women are more likely to have sporadic work histories. For example, women may choose to work in their younger adult years, exit the labor market for child-rearing, and return to the labor force intermittently. A series of investment spells associated with the intermittent employment spells of women in the labor market is allowed for in their model. The earnings power of the individual will increase in the segments for which the net investment is positive. However, when net investment is negative, ie. the depreciation in market skills overwhelms the gross investment, earnings power will decline. Mincer and Polachek adapt for women with intermittent work experience by separating the postschool investment term into successive segments of participation and non-participation as they occur chronologically. In the general case with n segments, the investment ratio k_i[5] is represented as

$$k_i = a_i + b_i t, \quad \text{for i=1, 2, …, n,} \qquad (1)$$

and the earnings equation E_t for an individual in time period t is

$$\ln E_t = \ln E_0 + rs + r\sum_{i=1}^{n}\int_{t_i}^{t_{i+1}} (a_i + b_i t)dt. \qquad (2)$$

In the above equations, a_i represents the initial investment ratio. The term b_i is the rate of change of the investment ratio during the i^{th} segment. The duration of the segment, e_i, can also be represented by $t_{i+1} - t_i$. The initial investment ratio refers to its projected value at $t_i = 0$ (the start of each segment of the employment spell). Alternatively this can be written as

$$\ln E = \ln E_0 + rs + r\sum_{i=1}^{n}\int_{0}^{e_i} (a_i + b_i t)dt. \qquad (3)$$

The rate of change in investment b_i is likely to be negative in longer intervals. However, it may not be significant in short intervals. The annual investment or depreciation rates may vary with the length of the

[5] This k_i term is the ratio of investment expenditures to gross earnings as in the original Mincer model. In the Mincer model, $k_t = C_t/E_t$ where C_t and E_t denoted the dollar amount of net investment in period t and the gross earnings in period t before the investment expenditures are subtracted, respectively.

interval. Even if individuals invest diminishing amounts over a segment of work experience, those who stay in the labor market longer are still likely to invest more per unit of time. Therefore, we expect that a_i is a positive function of the length of the interval. Thus if $k_{ij} = a_{ij} - b_{ij}t$ for a given individual j and if $a_{ij} = \boldsymbol{a}_{ij} + \boldsymbol{b}_{ij}t$ across individuals, on substitution, the coefficient b of t may become negligible or even positive in the cross-section.

Modifying the Mincer (1974) and Mincer and Polachek (1974) framework, the relationship between health, human capital investment, and earnings can be modeled. Consider two segments of the worklife, healthy (H) and unhealthy (U). Suppose that the individual participates in the labor force and is healthy initially. In this initial segment of her worklife she invests in human capital with the anticipation that she will work until some period T. If she remains healthy, her investment path for the healthy segment of her life will begin at $t_0 = 0$ (initial entry into labor market) and continue to time T. In other words, she will spend T- $t_0 = e_H$ years in the labor force as a healthy individual. Thus, we can consider e_H to represent the healthy employment segment. Then, the healthy person's investment path and earnings function can be represented as

$$k_H = a_H + b_H e_H \qquad (4)$$

and

$$\ln E_t = \ln E_0 + r_s s + r \int_0^{e_H} (a_H + b_H e) de, \qquad (5)$$

where $e_H = T - t_0$. Integrating this equation, the earnings equations can be written as

$$\ln E_t = \ln E_0 + r_s s + r_H [a_H e_H + \frac{1}{2} b_H e_H^2] = \ln E_0 + r_s s + r_H [a_H T_H + \frac{1}{2} b_H T_H^2]. \qquad (6)$$

This looks very similar to the typical Mincer equation since the employment spell e_H begins at time $t_0 = 0$ and spans for entire lifetime as used his original model. See Figure 1 for a graphical representation of the continuously healthy earnings profile for a representative individual continuously in the workforce.

Now suppose this same individual is moving along her age-earnings profile with the expectation that she will remain healthy, work, and continue along her profile until time T. However, at some point in her worklife she is faced with some unanticipated permanent health condition. Her initial healthy segment of the worklife will begin at $t_0=0$ and last until t_h (time period of onset of illness). In other words, she will spend $t_h - t_0 = e_H$ years in the labor force as a healthy individual. Thus, we can let e_H to represent the healthy employment segment. After the health shock is realized, she then modifies her human capital investment path with the new segment of the worklife beginning at t_h and lasting until she leaves the labor market at time T. In other words, at time t_h she finds herself moved off of her expected age-earnings profile. She then updates her expectation of the future (number of years remaining in the workforce, costs of reinvesting in human capital, stream of earnings with no human capital investment, stream of earnings if human capital investment occurs, etc.). With this new information she then chooses a new age-earnings profile for the remaining unhealthy worklife. If she continues to work, she will then spend T- $t_h = e_U$ years in the labor force as an unhealthy individual. Therefore, we can let e_U represent the unhealthy employment segment or the number of years in the labor market as an unhealthy individual. Thus, we can represent the investment paths and earnings equations as,

$$k_i = a_i + b_i e_i \quad \text{for i=H, U} \tag{7}$$

and

$$\ln E_t = \ln E_0 + r_s s + r\int_0^{e_H}(a_H + b_H e)de + r\int_0^{e_U}(a_U + b_U e)de. \tag{8}$$

Integrating this equation, the earnings equation can be written as

$$\ln E_t = \ln E_0 + r_s s + r_H[a_H e_H + \frac{1}{2}b_H e_H^2] + r_U[a_U e_U + \frac{1}{2}b_U e_U^2]. \tag{9}$$

where the length of the healthy employment spell is $t_h = t_h - t_0 = e_H$ and the length of the unhealthy spell in the labor market is $T - t_h = e_U$. See Figure 2 for a graphical representation of an earnings profile as formulated above for a representative individual continuously in the workforce who experiences an onset of a permanent health condition.

As the unhealthy employment spell, $T - t_h = e_U$ gets large, the age of onset at the time of illness gets smaller, all else constant. This implies that the individual has more time to recover training costs after illness. Thus, it is expected that the younger the individual when entering the unhealthy state, the more she will invest. As long as investment is larger than the depreciation of skills, earnings will increase after onset of illness.

This framework can also be used to explain changes in the human capital investment paths and the earnings equations for individuals suffering a temporary illness. In this case, the investment path is defined as

$$k_i = a_i + b_i e_i \quad \text{for i=H, TU, PTU} \qquad (10)$$

where H is the initial healthy spell, TU is the temporary unhealthy phase, and PTU is the post-temporary illness spell or the spell of employment after the individual has recovered from the temporary illness. Let $t_0=0$ be the initial entry into the labor market, t_h be the onset of the temporary illness, t_r be the time of recovery and T be the final exit out of the labor market. The earnings equation becomes

$$\ln E_t = \ln E_0 + r_s s + r\int_0^{e_H}(a_H + b_H e)de + r\int_0^{e_{TU}}(a_{TU} + b_{TU} e)de + r\int_0^{e_{PTU}}(a_{PTU} + b_{PTU} e)de. \qquad (11)$$

Integrating this equation, the earnings equation can be written as

$$\ln E_t = \ln E_0 + r_s s + r_H[a_H e_H + \frac{1}{2} b e_H^2] + r_{TU}[a_{TU} e_{TU} + \frac{1}{2} b_{TU} e_{TU}^2] + r_{PTU}[a_{PTU} e_{PTU} + \frac{1}{2} b_{PTU} e_{PTU}^2]. \qquad (12)$$

where $e_{H} = t_h - 0$ in the third term is the length of the healthy employment spell, $t_r - t_h = e_{TU}$ is the length of the temporary illness and the $T - t_r = e_{PTU}$ is the length of the post-temporary illness spell. See Figure 3 for a graphical representation of an earnings profile as formulated above for a representative individual continuously in the workforce who experiences a temporary health condition.

It is important to note two things. First, it is plausible that the depreciation of skills when the individual has a permanent or temporary health condition is accelerated such that the gross investment

term is always outweighed by the depreciation leading to a decrease in earnings.[6] Second, the model above does not yet incorporate a term to allow for the illness to have one-time shock to the human stock accumulated in the healthy state. The equations for the permanent and temporary health conditions can be modified by adding a term to capture these one-time shocks as follows:

$$\ln E_t = \ln E_0 + r_s s + r_H[a_H e_H + \frac{1}{2} b_H e_H^2] + \boldsymbol{j} PHC + r_U[a_U e_U + \frac{1}{2} b_U e_U^2] \quad (9a)$$

and

$$\ln E_t = \ln E_0 + r_s s + r_H[a_H e_H + \frac{1}{2} b e_H^2] + \boldsymbol{l} THC + r_{TU}[a_{TU} e_{TU} + \frac{1}{2} b_{TU} e_{TU}^2] + r_{PTU}[a_{PTU} e_{PTU} + \frac{1}{2} b_{PTU} e_{PTU}^2], \quad (12a)$$

where PHC =1 (THC=1) if there exists a permanent (temporary) health condition and 0 otherwise. In the empirical analysis discussed in a later section, such a term will be added to allow for the illness to eliminate, or render useless, a portion of the human stock accumulated in the healthy state.

Data

The Health and Retirement Survey (HRS) is used to estimate the effect of temporary and permanent illness on labor market outcomes. The targeted respondents of the survey are non-institutionalized men and women born between 1931 and 1941 residing in the United States.[7] Partners (spouses or live-ins) of the original targeted sample are also interviewed even if not initially age-eligible. The first wave was conducted in 1992-1993. The response rate was approximately 82%. A total of 7,703 households were interviewed. 9,824 of the 12,654 total respondents were age-eligible according to the targeted age group of individuals age 50-62. (Juster and Suzman, 1995)[8]

The HRS provides retrospective and current health information of the individuals surveyed. The retrospective health measures includes details of up to three particular health illness(es) an individual experiences, the date of onset of the illness, the date when the health condition first limited the individual's

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[6] In Mincer's original model, he decomposes net investment as follows: $\ln E_t = \ln E_0 + \sum_{i=0}^{t-1} (rk_i^* - \boldsymbol{d}_i).$

[7] Therefore, at the time the individuals were originally surveyed they were between the ages of 50 and 62 years.

[8] A more comprehensive description of the HRS can be found in Juster and Suzman.

ability to work, and the timing of recovery of specific temporary illnesses. While the questions regarding particular conditions and diseases do not measure the adaptation of an individual to a disease or provide specific information of the severity of the disease, the advantage is that individuals may be less susceptible to misreport the presence and timing of a particular health condition as an excuse not to work. For example, individuals may be less likely to misreport a heart attack last year than a limit in their functional ability.[9] To further reduce the tendency for individuals to misreport health as a reason for not working, the HRS survey was intentially designed with the health section being administered prior to the employment and retirement sections. Onset of illness in this paper refers to the year in which the health problem first interfered with the individual's work activities.

The HRS also provides detailed information about respondents' employment experience. Respondents are asked questions regarding the characteristics of their job if they are currently working.[10] If not currently working, but employed some time in the past individuals are asked similar questions about that employer. All individuals are asked details of at most three previous jobs that lasted at least 5 years each or had a pension plan option. In addition, individuals were surveyed about the spell of employment immediately before and after the onset of illness if they did not otherwise provide information about that employer. The employment data are used to compile a lifelong profile of an individual's labor market experience.

Multiple observations for each individual *i* at various time periods *t* are included in the sample. Each respondent that reported working at *any one point in time* will have a wage (hour) observation for the

[9] Conditions are coded as one of over 60 different illnesses or conditions. These conditions are more broadly categorized by the HRS as (1) cancer, tumor, and skin conditions, (2) musculoskeletal system and connective tissue, (3) heart, circulatory, and blood conditions, (4) respiratory conditions, (5) endocrine, metabolic, and nutritional conditions, (6) digestive system conditions, (7) neurological and sensory conditions, (8) reproductive system and prostrate conditions, (9) emotional and psychological conditions, (10) miscellaneous and (11) other symptoms. Lifetime histories of chronic diseases including hypertension, diabetes, cancer, chronic lung disease, heart problems (including angina and congestive heart failure), stroke, psychiatric problems and arthritis are emphasized in the HRS. In a separate paper, particular illnesses will be focused on to determine if different illnesses have different impacts on performance in the labor market.

[10] Employment information obtained in the survey include measures for occupation; industry; firm size; hours flexibility; union status; physical and cognitive demands of the job; willingness of employer to make adjustments to any health limitations; and information regarding starting and ending dates, hours worked, weeks worked per year and earnings.

reported starting and ending date of each reported employment spell. For example, consider an individual that reports he is currently working at the one employer for which he has worked for the duration of his worklife. This individual will then have two wage (hour) observations. See Figure 4 for a graphical representation of this individual A, with two wage (hour) observations at times t_0 and t_1. As the individual reports more employers the number of wage (hour) observations for that individual will also increase. See Figure 5 for a graphical representation of an individual whom reports working at three employers. He will then have a total of six wage (hour) observations, one for the beginning and ending date of each employment spell. These observations occur at different years and ages across individuals, thereby allowing for an age-earnings profile to be modeled.

Demographics relevant to this analysis found in the HRS include age, race, and years of education. In addition, the respondents are asked about not only their current marital status, but the beginning and ending dates of previous marriages. The number of children and their dates of birth are also available and used in the analysis. Therefore, an individual's marital status and number of children living at home within a given age range will vary across an individual's observations as the year of the observations varies.

The data included in the HRS allows for improvements upon previous work. First, the HRS allows a more complete analysis including a relatively large sample of both men and women. Thus, a comparison can be made to determine whether males and females face identical consequences of illness by estimating separate equations for males and females. Due to differences in labor force attachment patterns and potential differences in physical demands of employment, it is likely that the impact of health varies across the sexes.

Second, while Charles had to rely on some imputations for the age of onset variables, and Chirikos and Nestel did not know the date of onset of illness, the HRS specifically asks respondents for the onset dates. While there may exist some recall bias and reporting errors by respondents, the psychological literature has reported that individuals recall on items that have life-altering affects and economic

consequences is fairly accurate.[11] Thus, the reported date of onset by the respondents may more accurately reflect the actual date of onset than the imputed data that is used by Charles.

Third, the HRS allows for the health conditions to be broken down into temporary and permanent illnesses. The dates of both onset and recovery allow for the length of temporary illness and the timing of temporary shocks to be studied. One would expect that temporary illnesses do not alter earnings and hours worked to the same extent as permanent or chronic conditions. Therefore, separate variables are used to measure whether an individual has a permanent health condition or a temporary health condition.

Fourth, while Nestel and Chirikos use earnings for only one year and Charles is able to observe wages for approximately 10 years after the onset of work limiting health, the HRS *allows* for wage observations to *span* some 30 years of the age-eligible population. However, the HRS wage observations are not reported for each year an individual is in the labor market, but for the starting and ending date of each job surveyed.

Empirical Analysis

Empirically, the impact of current and temporary health problems and the timing of those problems at time *t* can be estimated with the following model:

$$\text{Ln(Avg. Hourly Wage)} = \alpha_0 + \alpha_1\text{Male} + \alpha_2\text{Black} + \alpha_3\text{Other} + \alpha_4\text{Yrs of Ed} + \alpha_5\text{Married} + \beta_1(\text{Healthy exp}) + \beta_2(\text{Healthy exp})^2 + \varphi_1\text{PHC} + \varphi_2\text{PHC*(Unhealthy exp)} + \varphi_3\text{PHC*(Unhealthy exp)}^2 + \delta_1\text{THC} + \delta_2\text{THC*(Temp Ill Exp)} + \delta_3\text{THC*(Temp Ill Exp)}^2 + \delta_4\text{THC(Post-Ill Exp)} + \delta_5\text{THC*(Post-Ill Exp)}^2 + \varepsilon \quad (13)$$

The dependent variables in the analysis are the natural log of real average hourly wages and the annual hours worked by the individual. Wages are measured in 1980-1982 constant dollars. The independent variables are described in Table 1.

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11 Detailed information regarding the employment spells in the HRS are asked about in chronological order, with the respondent being asked employment from the most to least recent. According to the psychology literature, individuals do well in putting events in chronological order. Typically, events are remembered in terms of different periods or stages in their life. Transition events that mark boundaries between periods often seem to be well remembered. The more information retrieved from the event memory, the more accurately the individual will be able to place that event in time. Infrequent, person-atypical, emotional, life-altering and frequently rehearsed memories are, in general, well remembered events. (Thompson, Skowronski, Larsen and Betz, 1996)

In the wage equation, Current Permanent Health Condition (PHC) is a dummy variable that equals 1 if the individual reports such a condition that interferes with her ability to work and 0 otherwise. This variable is included in the model to control for the one-time shock to wage earnings due to a sudden depreciation in human capital as a result of the health condition. This could be due to the individual not being able to perform some physical or mental function at all, at the same rate of time, or at the same level of quality, etc. A similar dummy variable for Temporary Health Conditions (THC), equal to 1 if the individual reports a temporary condition that interferes with work and 0 otherwise, is also included in the estimation for similar reasons. Individuals may report having either a temporary or a permanent health condition, but the two are mutually exclusive.

The retrospective employment history is used to piece together an actual experience profile. Individuals report current employment status and start date if currently working, last job starting and end dates if not currently working. Up to an additional three previous start and end dates are reported by respondents for jobs which either lasted at least 5 years or offered a pension plan.

Using the timing of illness and starting and ending dates of employment spells, a measure of actual experience when healthy, actual experience after onset of permanent health condition, actual experience during temporary illness, and actual experience after recovery from temporary illness can be used in the regression analysis. This may be a more suitable measure for experience than the potential experience variable that is typically used in equations controlling for differences in experience levels across individuals. If women have sporadic employment spells or have been absent from the labor market for child-rearing or household responsibilities in their early adult years, this measure of actual experience may be a better control when determining if men and women have similar health-labor market relationships.[12] If household and child-rearing activities do not add to human capital in a manner that is valued in the labor market, the actual experience variable is more palatable. Thus, in the empirical analysis the wages and

[12] For example, if a woman with 12 years of education has initially entered the labor force at age 40 and becomes permanently ill at 45, the potential healthy experience variable will take on the value of 27 years while the actual healthy experience variable would be 5 years.

hours of the individual are estimated with a measure controlling for actual experience variable is used in some of the regression analysis.[13]

Other variables that are likely to influence wages and included in the wage equation include controls for gender, race, education, and marital status. The expected signs of these are the same as in the typical wage equation. The same variables are included in the annual hours equation. In addition, measures controlling for the presence of children in the household are also included as independent variables in the hours worked equations. Age, years of experience, marital status and the number of children in the household are allowed to vary across observations for a given individual as the time of the wage and hour observation varies.

Table 2 displays the means of the data used in the analysis of average hourly wages. This sample is limited to those individuals who have reported working at some point. Recall, each individual has an observation for each wage reported in the survey—for the beginning and ending date of each reported employment spell. Males and females are nearly equally represented in the sample. On average the individual is 44 years of wage when the wage is observed.[14] Whites are the omitted category making up 80% of the sample. The proportion of blacks and other race are 16% and 4%, respectively, with a slightly larger percentage of black women than black men. Approximately 8% of the population reports having a current permanent health condition. Temporary past health conditions are present for a smaller percentage (3%) of the sample. Average age of onset of permanent illness is the same for men and women at 42 years

[13] Initially, the regression analysis was performed using potential experience measures, as typically defined by labor economists. For those individuals with no health problems, the potential experience is calculated as (Age – Years of School – 6). The healthy experience variable measures the potential experience the individual has accumulated during the employment spells up to the wage observation if she is continuously healthy or up to the time of onset of illness. The unhealthy spell is the potential experience the individual accumulates after the onset of a permanent health condition. Similarly, the Temp Ill experience measures the potential experience obtained while in the temporary illness stage. Lastly, the Post-Ill experience variable controls for the potential experience the individual gains after recovering from the temporary illness. The results of these regressions are not reported in this paper. In addition, a combination of the potential and actual experience measure was used to estimate the wage and hour equations for males. Specifically, males were given potential experience as their experience level up to the time the individual reported first being employed then given potential + actual experience after the initial employment spell. Using this combination of experience did not alter the results significantly and therefore, are not reported.

[14] The average age of the individual when the survey is administered is 56 years of age. This sample's average age is approximately 12 years younger.

of age. Temporary health conditions occur at slightly younger age of 40 years and on average last between 1 and 2 years. Regardless of whether the individual has a health shock or not, the average length of potential experience is approximately 25 years. Individuals who have experienced a permanent health condition are observed to have on average 7 years of potential experience after onset, with the men having slightly more years post-illness than women. Those individuals who have recovered from temporary illness and observed to be in the labor market work have approximately 10 additional years of potential experience after onset. Average hourly wages in this sample are higher for men than women at $9.43 and $6.37, respectively. Table 7 shows the means of the variables used for the annual hours estimates.[15] Men work approximately 400 more hours annually than women, with men working approximately 2240 hours and women working about 1850 hours annually on average.

Empirical Results

In estimating the impact of health on the average hourly wages and annual hours of work of an individual using simple Ordinary Least Squares is not suitable. A couple of econometric issues must be addressed.

First, recall that each individual has more than one wage (hour) observation.[16] With individuals having multiple observations and the number of observations per individual varying within the sample, adjustments must be made to produce robust standard errors. While it is likely that the wage of one individual's wage observation is independent of other individuals' wages, it is unlikely that an individual's wage observation at one point in time is independent of his wage observation at another point in time.

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[15] Some of the respondents did not give responses for hours worked or questions regarding children but gave wage information, or vice-versa, so the number of usable observations varies across the equations being estimated. However, the mean characteristics of the samples are very similar.

[16] Exceptions to this may occur if the individual responded he "did not know" the wage (hour) at either the beginning or end of the sole employment spell reported. If this occurs it is a missing observation.

Therefore, the regression estimation is performed with the independence assumption being relaxed, requiring only that observations be independent across individuals.[17]

The second econometric issue that must be addressed is an underlying sample selection bias of the observed wages (hours). Only those individuals who have chosen to participate in the labor market have observations for wages (hours). If individuals make the decision to work randomly, we could ignore the fact that that not all wages are observed and the modified OLS process as described above would be suitable. However, it is unlikely that the decision to participate in the labor force is a purely random event. Rather, individuals choose not to work when their personal reservation wage is greater than the wage offered to them by potential employers. Thus, those individuals whom would receive low wages are less likely to participate in the labor market than the individuals whom would receive higher wages. Therefore, the sample of observed wages is biased upward.

To incorporate the underlying decision to work, the Heckman selection correction method is used to correct for the truncation problems discussed above. Essentially, a probit equation is estimated to model the decision of the individual to work or not work. Using the estimates produced from the probit equation, a Mills' ratio is calculated for each observation. The Mills' ratio is then used as a regressor in the wage and hour equations to produce unbiased coefficients. [18]

The employment spell data is used in the probit estimation to model the decision of the individual to work or not work. Each individual has an observation for every year of his life beginning at age 18. The information regarding beginning and ending dates of each employment spell are used to determine whether he worked in a given year.[19] The explanatory variables are the same as used in the hours equations with the inclusion of year dummies denoting what year the observation takes place. These dummy variables capture

[17] The statistical package STATA provides a **cluster** command to be added to the regression command. This process is similar to a random-effects model.

[18] This correction can be done as the two-step process described above. However, the sample selection model can also be estimated by maximum likelihood. The maximum likelihood process was used in this analysis. Mills' ratio estimates are used for starting values in the iterative maximization process.

year effects whether it be changes in economic climate (unemployment rate), changes in federal disability insurance programs, etc. The results of the probit model can be found in Table 12.

Wage Results: OLS with cluster adjustments

The results of the OLS (with the cluster adjustment) average hourly wage estimates are presented in Table 3. In the first two columns, the regression results are presented for the entire sample. The first column provides estimates of the wage equation that includes linear terms only for the four experience variables. The second column provides estimates of the equations adding experience squared terms. The third and fourth columns give the estimates produced by performing separate regressions for the men. The women's estimates are in the fifth and sixth columns. The estimated coefficients for the demographic variables are similar to the typical estimated wage equation.

Focusing on the first column in Table 3, the negative coefficient on the healthy experience variable implies that individuals are on the earnings-increasing segment of their age-earnings profile. Having a current permanent health condition is associated with a statistically significant 5.9% drop in the average hourly wage. After the onset of the illness, the coefficient on the unhealthy experience variable is positive suggesting the earnings profile continues to be upward sloping. However, the coefficient is not as large as the coefficient for the healthy experience implying that either there is less investment in human capital, the depreciation in human capital stock has accelerated, or the value of the returns to human capital is less after the health shock.

Having a temporary condition in the past does not result in a significant change in average hourly wage rate. However, the individuals with a temporary condition do not receive the same increase in wages for an additional year of experience after the temporary health condition (.0106) that the healthy individuals receive (.0131).

Comparing the males and females wage equation estimates, women face a larger wage penalty than men after illness. The negative shock is larger for women than men (8.2% as compared to 4.5%) with a

[19] For example, if the individual reported a start date of 1967 and end date at 1974 at his first employer then reports his next job beginning in 1976, his work variable will take on the value of 1 in years 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974 and 1976 and a value of 0 in year 1975.

permanent health condition. The wage profile of both men and women is upward sloped but with a smaller yearly increase in wages after suffering a permanent health shock as compared to the healthy experience yearly return. The temporary conditions have little effect on average hourly wages.

To determine if age of onset is a factor in the role of illness on wages, three different age of onset categories for permanent health conditions: condition onset before age 30, condition onset between the ages of 30 and 45, and age of onset between after 45 years of age. For each of the age categories, a dummy variable equal to 1 is included if the permanent health problem occurred in the respective age group and 0 otherwise. Additionally, experience variables after the onset of permanent health condition separately for each age group are included in the regression equation. The results for the wage equations are given in Table 4. Temporary illnesses were not segregated by age of onset as the numbers of individuals in each category are too small. The presence of a permanent health condition varies across age groups, but is insignificant. The unhealthy experience significant coefficients vary slightly across age groups. However, the coefficient on the variable controlling for an additional year of experience after the onset of a permanent health condition in each specification, is smaller (if positive and sometimes even turns negative) than the coefficient on the healthy experience variable. Thus, even if the individuals with a permanent health condition do not endure a negative one-time shock in their wages the age-earnings profile consistently becomes flatter and sometimes even turns downward.

Wage Results: Heckman Correction for Sample Selection

The regression results for the estimation of the natural log of average wages using the Heckman correction technique are presented in Table 5. For the overall sample, having a permanent health condition results in a 5.4% dip in average hourly wages. Additionally, the increase in wages due to an additional year of experience after the health shock is not significantly different from zero. Note that an additional year of experience while the individual is healthy significantly increases average hourly wages at a decreasing rate. Thus, when determining the total impact of the occurrence of a permanent health condition both the one-time shock and the lack of the increase in earnings throughout time should be considered.

Comparing men and women, the permanent health condition is associated with an approximate 10% dip in average hourly wages for women. However, men do not seem to face the consequence of the one-time shock associated with the onset of a permanent illness. However, the age-earnings profile becomes flat for men after the onset of illness whereas healthy men have a positive return to each additional year of experience while healthy. Women on the other hand, do gain back some of the lost wages with each additional year of experience after the initial 10% hit in wages at the onset of their illness.

In Table 6 the impact of health across age groups are presented, in the overall sample a permanent health condition that originates before age 30 at first glance looks to have a positive effect on wages. However, note that the age-earnings profile actually turns down after the onset of illness. Therefore, although individuals who have a health problem before the age of 30 do not suffer the one-time hit to wages at the initial onset, they suffer a loss in wages for each additional year they are employed.

In the overall sample, the permanent health condition that occurs between the ages of 30 and 45 again does not imply a one-time dip in the average hourly wages received. However, the age-earnings profile is once again flat for these individuals compared to the upward sloping profile obtained by the healthy individuals.

Individuals age 45 and older when first faced with a permanent health condition endure the largest negative consequences in their wages received. This group suffers a 9% one-time hit in wages. Then, the age-earnings profile increases, but at a slower rate than the healthy individuals.

These age of onset patterns persist when wages of males and females are estimated separately. However, for the individuals with the onset of illness occurring after the age of 45 the women take 13% hit in wages while the men take only a 6% decrease in wages. However, women do receive a slight increase in the wages for every year they remain in the workforce post-onset of permanent illness while men do not.

Annual Hours Results: OLS with Cluster Adjustments

As can be seen in Table 8, having a permanent health condition significantly reduces the number of annual hours worked by approximately 40 hours. Likewise, every additional year after onset of the permanent illness, the worker does not significantly increase the hours worked annually contrary to the 5.2

annual increase in annual hours worked for the healthy individual. Thus, having a permanent health condition negatively affects hours worked through both measures. Overall, temporary illnesses in the past do not significantly affect number of hours worked during the illness. However, after recovering from the temporary illness, those individuals work a larger number of annual hours than the continuously healthy.

There is an overwhelming difference between the impact of health on men than on women. Men significantly reduce hours after onset of a permanent illness by approximately 70 hours per year. However, women do not significantly reduce the number of annual hours worked when bothered by a permanent health condition.

Table 9 presents the results for the annual hours worked with permanent health conditions broken into the three age groups. Focusing on the second column where the experience squared terms are included with the estimation of males and females, having a permanent health condition is associated with a decrease in the number of hours worked annually. The later in life the onset of illness, the larger the reduction in number of hours worked. Comparing across gender in columns 4 and 6, males reduce their hours worked per year much more than females at every age range. Males decrease the number of hours they work by approximately 90 hours per year when the age of onset is before 30 years of age, by almost 220 hours if onset occurs at ages 30-45, and by almost 200 hours if onset occurs after age 45. This is comparable to not working a total of five 40-hour weeks per year. While the coefficient on the females permanent health condition occurring before age 30 is positive the yearly reduction in hours for each additional year in the labor market is almost as large and dominates the positive effect by the second year. Generally, the later in life the age of onset, the greater the reduction in hours worked per year with the males taking the largest cut in annual hours.

Annual Hours Results: Heckman Correction for Sample Selection Bias

Results for the annual hours worked with the actual experience measures included are shown in Table 10. The results are comparable to the estimates given with the OLS cluster regressions. Permanent health conditions result in a reduction in annual hours worked of approximately 40 hours overall. While men cut back approximately 100 hours of annual work, women do not make significant changes to the

number of hours worked annually. While there is not a large reduction in the hours worked due to the presence of a temporary illness, for every additional year of experience during the temporary illness individuals reduce the number of hours worked in the range of 27 to 41 hours per year, but then increase the number of hours worked after recovering from the temporary illness.

Inspecting the results for the hours worked equations with the permanent health conditions broken down into age of onset categories as given in Table 11, men and women respond differently to the onset of illness. The permanent health condition consistently results in men reducing their hours worked. The older the male is when onset of illness, the greater the reduction in the hours worked. The difference between the impact across age categories for men is sizable, ranging from a reduction of 93 hours if onset occurs before age 30 to a reduction of 235 hours if onset occurs between the ages of 30 and 45.

Conclusion

The purpose of this paper was to examine the long-term impact of illness on labor market decisions and outcomes. While previous studies have limited their focus to a one-year or ten-year period following the onset of illness, the HRS data used here allows a longer period of time to be investigated. The distinction between temporary and permanent illness, and their impact on wages and hours are also investigated. Additionally, the HRS allows for comparisons across gender to determine if men and women face the same economic consequences after becoming ill.

The employment history of the individual is pieced together to create a yearly observation for each individual denoting whether an individual participated in the labor market or not for each year. This employment profile together with demographic and health data are used in probit analysis to model the individuals' decision to work in each year. The results of the probit estimation is then used to adjust for any sample selection bias underlying the wage and hours worked equations produced to examine the affect of poor health on earnings.

Current permanent health conditions are found to have significant negative effects on average hourly wages of the workers. The decline in earnings along the age-earnings profile is accelerated by the presence of a health condition. Women face a larger percentage reduction in wages than males as a result

of permanent health conditions. Temporary health conditions have little impact on the average hourly wages received.

Not surprisingly, having health problems leads to a reduction in the annual hours worked. While the women were shown to take a larger reduction in wages, the men seem to bear a larger burden in terms of the reduction in hours worked than women. Thus, these results imply that the underlying differences in the reason for the reduction in total earnings differs between men and women.

The longitudinal affects of illness on the labor market decisions and outcomes can have far-reaching consequences for individuals. Decisions of whether to stay in the labor force, apply for social insurance programs or retire early are just a few of decisions health can influence for an individual. Additionally, the implementation of policies such as increasing the age of eligibility into social programs such as Medicaid and Social Security may intensify the economic hardships of lower wages and reduction in hours and thus, lower earnings associated with poor health if health has lasting effects in the labor market. If illness occurs at a time in the worklife where adjustments may be made by the individual to diminish the negative consequences of illness, policymakers may want to reconsider the focus of the policies and provide economic incentives to make those adjustments and remain in the labor force.

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Figure 1: Continuously Healthy

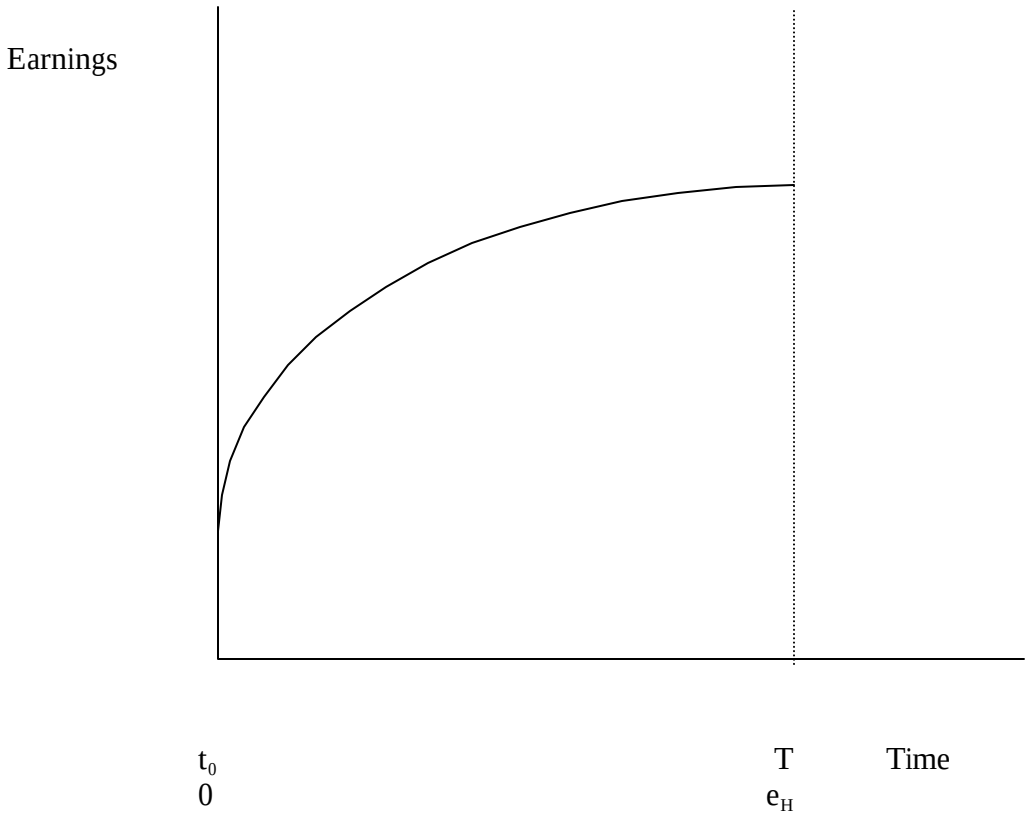

Figure 2: Permanent Health Condition

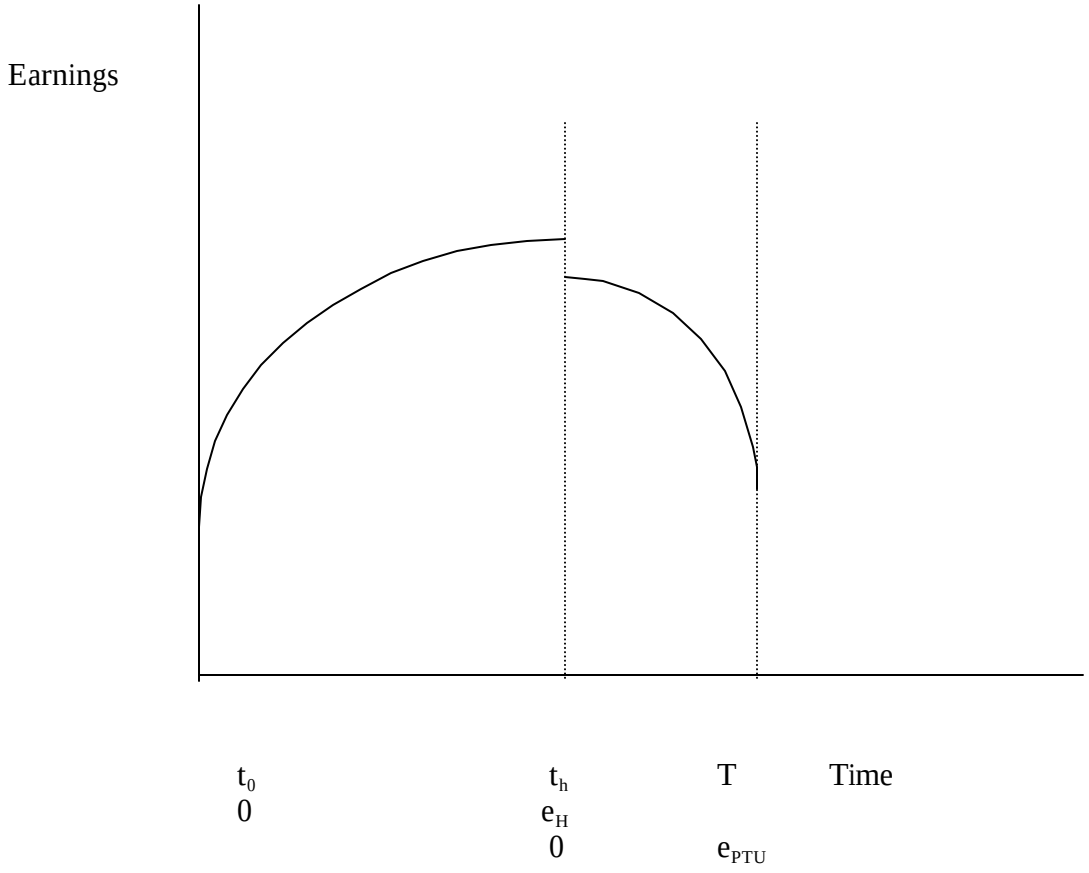

Figure 3: Temporary Health Condition

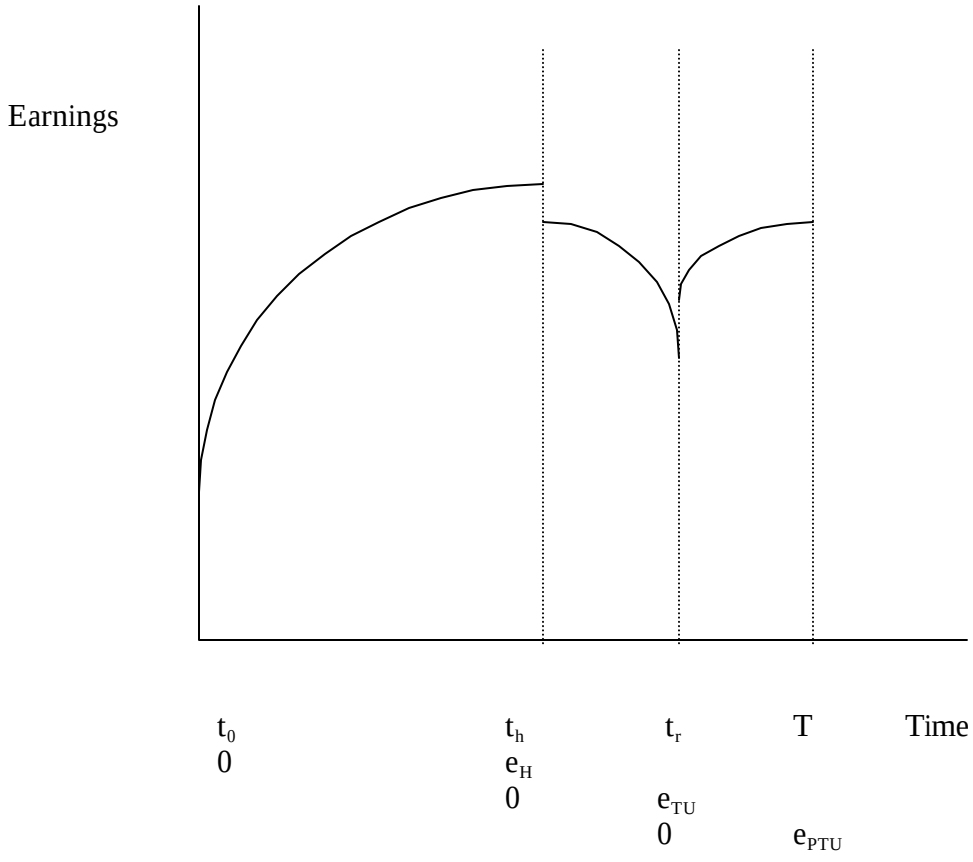

Figure 4: Earnings Profile
Individual With One Employment Spell Observed, Currently Working

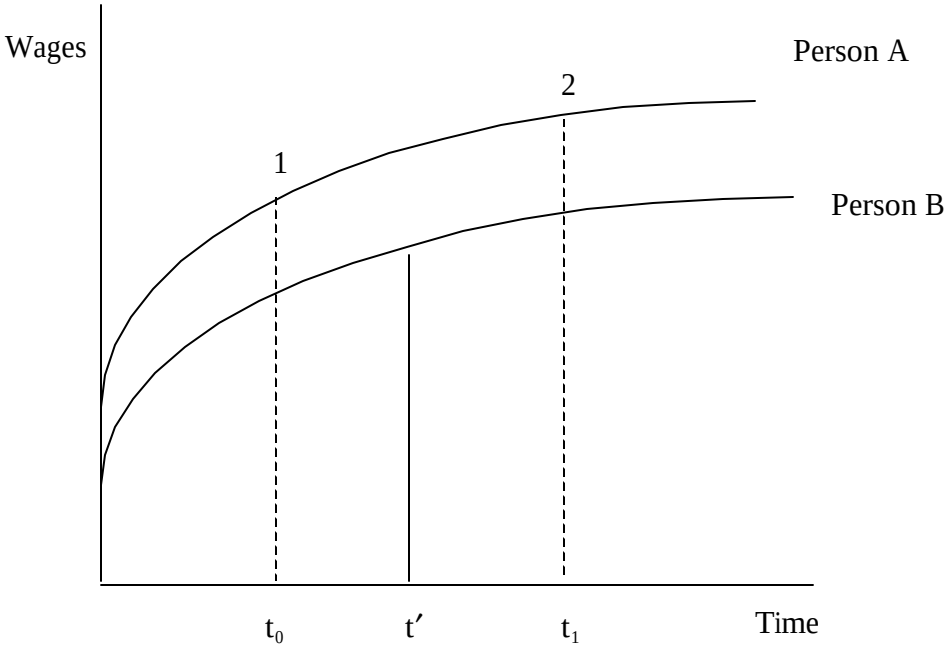

Figure 5: Earnings Profile
Individual With Multiple Employment Spells Observed, Currently Working

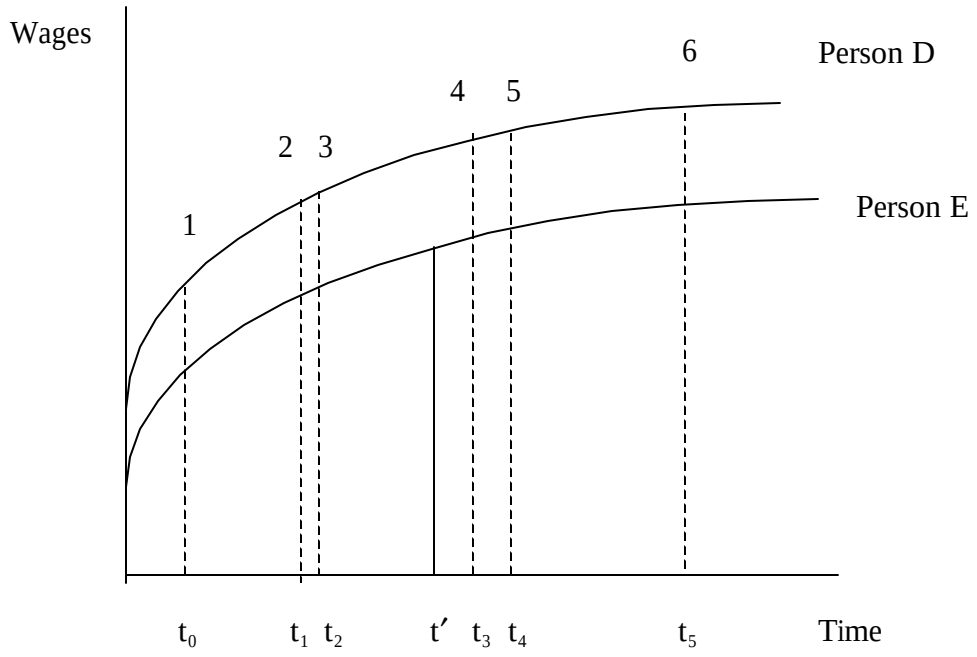

Table 1: Description of Variables

ln(Avg. Hourly Wage) = natural log of the average hourly wage reported

Annual Hours Worked = Weeks worked per year x Hours worked per week

Male = 1, if Male
0, if Female
Black = 1, if Black
0, if Not Black
Other = 1, if Race other than Black or White
0, if Black or White
Yrs of Ed = Years of Education

Married = 1, if Married
0, if Not Married
Number of Kids Under Age 7 (used in hours analysis)

Any Kids Under Age 17 = 1, if have at least one child under the age of 17
= 0, otherwise (used in hours analysis)
PHC = 1, if have Current Permanent Health Condition
0, otherwise
THC = 1, it Temporary Health Condition in Past
0, otherwise

Potential Experience Variables:

Healthy Exp = Age – Yrs of Ed – 6, if no Health Condition Reported (PHC=0 & THC=0)
Age at onset PHC – Yrs of Ed - 6, if Permanent Health Condition (PHC=1)
Age at onset TCH – Yrs of Ed – 6, if Temporary Health Condition (THC=1)
Unhealthy Exp = 0, if no Health Condition Ever Reported (PHC=0 & THC=0)
Age – Age at onset PHC, if Permanent Health Condition (PHC=1)
0, if Temporary Health Condition (THC=1)
Temp Ill Exp = 0, if no Health Condition Ever Reported (PHC=0 & THC=0)
0, if Permanent Health Condition (PHC=1)
Age at End THC– Age at onset THC, if Temporary Health Condition (THC=1)
Post-Ill Exp = 0, if no Health Condition Ever Reported (PHC=0 & THC=0)
0, if Permanent Health Condition (PHC=1)
Age – Age at End THC, if Temporary Health Condition (THC=1)

Actual Experience Variables:

Healthy Exp = number of years reported working while healthy

Unhealthy Exp = number of years reported working while having a permanent health Condition
Temp Ill Exp = number of years reported working while having a temporary health Condition
Post-Ill Exp = number of years reported working after recovering from a temporary health Condition

TABLE 2
SUMMARY STATISTICS: MEAN VALUES OF VARIABLES USED

Variables	All	Males	Females
Male	.51	---	---
Age	43.72	43.69	43.76
Black	.17	.15	.18
Other Race	.04	.04	.03
Years of Education	12.21	12.10	12.31
Married	.78	.81	.75
Potential Experience if No Health Condition	25.43	25.29	25.56
Actual Experience if No Health Condition	11.18	13.57	9.36
Potential Experience, Prior to Onset of Health Condition	24.55	25.29	24.34
Actual Experience, Prior to Onset of Health Condition	11.31	13.52	8.40
Permanent Health Condition	.08	.09	.07
Age of Onset of Permanent Health Condition, if Applicable	41.12	41.06	41.30
Potential Experience, After Onset of Permanent Condition	7.83	8.21	6.77
Actual Experience, After Onset of Permanent Condition	5.19	6.03	4.09
Temporary Health Condition	.03	.04	.03
Age of Onset Of Temporary Health Condition, if Applicable	39.93	39.92	39.96
Potential Experience, During Temporary Health Condition	1.66	1.50	1.88
Actual Experience, During Temporary Health Condition	1.31	1.36	1.23
Age at End of Temporary Health Condition	41.12	40.88	41.47
Potential Experience, After Temporary Health Condition	10.29	10.99	9.08
Actual Experience, After Temporary Health Condition	7.24	8.57	5.34
Average Hourly Wage (in 1982-84 dollars)	7.16	9.42	6.33
N	29370	14870	14500

TABLE 3: OLS (WITH CLUSTER CORRECTION) REGRESSION RESULTS, ACTUAL EXPERIENCE
DEPENDENT VARIABLE: NATURAL LOG OF HOURLY WAGES
(ABSOLUTE VALUE OF t-STATISTICS IN PARENTHESIS)

Independent Variables	All		Males		Females	
Male	.3603 (32.291)	.3608 (46.003)	---	---	---	---
Black	-.0562 (4.002)	-.0562 (5.469)	-.1085 (4.874)	-.1089 (4.890)	-.0203 (1.151)	-.0196 (1.109)
Other Race	-.0306 (.939)	-.0309 (1.523)	-.0980 (2.102)	-.0995 (2.130)	.0325 (.732)	.0330 (.745)
Age	.0072 (2.407)	.0063 (2.790)	.0233 (5.839)	.0250 (6.392)	-.0143 (3.437)	-.0153 (3.637)
Age Squared	-.0002 (6.577)	-.0002 (8.205)	-.0004 (8.447)	-.0004 (9.153)	-.000003 (.005)	.00001 (.198)
Years of Education	.0736 (38.016)	.0736 (58.756)	.0679 (26.046)	.0681 (26.202)	.0815 (28.812)	.0814 (28.804)
Married	.0221 (1.958)	.0225 (2.453)	.0642 (3.458)	.0638 (3.438)	-.0103 (.738)	-.0104 (.745)
Actual Experience While Healthy	.0116 (19.613)	.0131 (11.436)	.0093 (10.689)	.0073 (3.232)	.0133 (16.791)	.0159 (9.503)
Actual Experience While Healthy Squared		-.00004 (1.400)		.00005 (.929)		-.0001 (1.676)
Permanent Health Condition	-.0592 (3.167)	-.0446 (2.005)	-.0453 (1.669)	-.0113 (.361)	-.0826 (3.120)	-.0896 (2.698)
Actual Experience After Onset of Permanent Condition	.0087 (3.761)	.0026 (.447)	.0054 (1.952)	-.0071 (.925)	.0128 (3.061)	.0164 (1.636)
Actual Experience After Onset of Permanent Condition Squared		.0003 (1.189)		.0005 (1.939)		-.0002 (.330)
Temporary Health Condition	.0268 (.566)	.0092 (.170)	-.0033 (.047)	-.0219 (.297)	.0436 (.726)	.0456 (.605)
Actual Experience During Temporary Health Condition	.0094 (1.901)	.0188 (1.524)	.0079 (1.411)	.0141 (.938)	.0198 (1.882)	.0241 (.867)
Actual Experience During Temporary Health Condition Squared		-.0005 (.961)		-.0003 (.669)		-.0006 (.388)
Actual Experience After Temporary Health Condition	.0122 (5.398)	.0106 (1.964)	.0082 (3.132)	-.0009 (.134)	.0182 (3.848)	.0281 (2.237)
Actual Experience After Temporary Health Condition Squared		.00005 (.213)		.0004 (1.638)		-.0006 (.991)
Constant	.9896 (15.026)	1.0029 (22.041)	1.0685 (12.574)	1.0401 (12.422)	1.3579 (14.768)	1.3722 (14.814)
N	30344	30344	15386	15386	14958	14958

TABLE 4: OLS (WITH CLUSTER CORRECTION) REGRESSION RESULTS, ACTUAL EXPERIENCE
DEPENDENT VARIABLE: NATURAL LOG OF HOURLY WAGES
(ABSOLUTE VALUE OF t-STATISTICS IN PARENTHESIS)

Independent Variables	**All**		**Male**		**Female**	
Male	.3616 (32.439)	.3609 (32.245)	___	___	___	___
Black	-.0558 (3.975)	-.0560 (3.994)	-.1078 (4.846)	-.1083 (4.872)	-.0202 (1.142)	-.0195 (1.106)
Other Race	-.0317 (.974)	-.0302 (.928)	-.0995 (2.132)	-.0987 (2.109)	.0301 (.679)	.0320 (.722)
Age	.0068 (2.276)	.0061 (2.106)	.0230 (5.710)	.0249 (6.287)	-.0146 (3.486)	-.0152 (3.600)
Age Squared	-.0002 (6.397)	-.0002 (6.480)	-.0004 (8.313)	-.0004 (9.120)	.00003 (.065)	.00008 (.158)
Years of Education	.0738 (37.977)	.0735 (38.028)	.0680 (26.019)	.0680 (26.124)	.0817 (28.763)	.0813 (28.619)
Married	.0227 (2.008)	.0228 (2.027)	.0651 (3.501)	.0642 (3.458)	-.0102 (.731)	-.0103 (.740)
Actual Experience While Healthy	.0117 (19.328)	.0135 (8.855)	.0094 (10.406)	.0076 (3.145)	.0134 (16.891)	.0161 (9.431)
Actual Experience When Healthy Squared		-.00005 (1.131)		.00005 (.857)		-.0001 (1.610)
Permanent Health Condition: Age<30	.093 (1.538)	.0419 (.606)	.0868 (1.025)	.0165 (.164)	.0702 (.878)	.0171 (.192)
Actual Exp. After Onset of Perm. Condition: Age<30	-.0097 (1.372)	-.0104 (.614)	-.0044 (.538)	.0097 (.466)	-.0420 (3.850)	.0128 (.235)
Actual Exp. After Onset of Perm. Condition Squared: Age<30		.00007 (.098)		-.0005 (.664)		-.0048 (1.063)
Permanent Health Condition: Age 30-45	-.0208 (.422)	-.0698 (1.179)	-.0472 (.506)	-.0865 (.759)	.0039 (.072)	-.0703 (1.109)
Actual Exp. After Onset of Perm. Condition: Age 30-45	-.0019 (.444)	.0116 (.868)	.0005 (.079)	.0050 (.248)	-.0070 (1.039)	.0198 (1.194)
Actual Exp. After Onset of Perm. Condition Squared: Age 30-45		-.0007 (1.151)		-.0002 (.223)		-.0014 (1.568)
Permanent Health Condition: Age 45+	.0028 (.081)	-.0108 (.230)	.0144 (.251)	.0041 (.053)	-.0101 (.222)	-.0404 (.486)
Actual Exp. After Onset of Perm. Condition: Age 45 +	-.0020 (1.113)	-.00005 (.008)	-.0022 (.884)	-.0007 (.082)	-.0025 (.772)	.0042 (.642)
Actual Exp. After Onset of Perm. Condition Squared: Age 45 +		-.00006 (.391)		-.00004 (.200)		-.0003 (.412)
Temporary Health Condition	.0024 (.049)	.0129 (.259)	-.0301 (.406)	-.0204 (.273)	.0338 (.532)	.0418 (.653)
Actual Exp. During Temp. Health Condition	.0121 (2.503)	.0069 (1.327)	.0091 (1.656)	.0063 (1.102)	.0228 (2.196)	.0158 (1.387)
Actual Exp. During Temp. Health Condition Squared		.0003 (3.306)		.0002 (2.042)		.0005 (1.956)
Actual Exp. After Temp. Health Condition	.0119 (5.294)	.0125 (2.228)	.0081 (3.109)	.0003 (.038)	.0179 (3.797)	.0297 (2.534)
Actual Exp. After Temp. Health Condition Squared		-.00005 (.019)		.0004 (1.572)		-.0007 (1.106)
Constant	.9902 (14.939)	1.005 (15.519)	1.0698 (12.484)	1.0422 (12.324)	1.3599 (14.715)	1.3728 (14.759)
N	30344	30344	15386	15386	14958	14958

TABLE 5: REGRESSION RESULTS WITH HECKMAN CORRECTION, ACTUAL EXPERIENCE
DEPENDENT VARIABLE: NATURAL LOG OF HOURLY WAGES
(ABSOLUTE VALUE OF z-STATISTICS IN PARENTHESIS)

Independent Variables	All	Males	Females
Male	.3675 (46.296)	---	---
Black	-.0526 (5.048)	-.1116 (6.894)	-.0104 (.785)
Other Race	-.0315 (1.540)	-.0981 (3.321)	.0338 (1.209)
Age	.0047 (2.042)	.0253 (7.656)	-.0193 (5.849)
Age Squared	-.0002 (7.098)	-.0004 (10.361)	.0001 (1.405)
Years of Education	.0730 (57.454)	.0675 (39.026)	.0807 (42.834)
Married	.0241 (2.477)	.0579 (3.703)	-.0024 (.195)
Actual Experience While Healthy	.0135 (11.621)	.0070 (4.108)	.0160 (9.448)
Actual Experience While Healthy Squared	-.0001 (1.605)	.0001 (1.516)	-.0001 (1.879)
Permanent Health Condition	-.0537 (2.550)	-.0174 (.568)	-.1004 (3.381)
Actual Experience After Onset of Permanent Condition	.0057 (1.012)	-.0058 (.794)	.0215 (2.200)
Actual Experience After Onset of Permanent Condition Squared	.0002 (.741)	.0005 (1.661)	-.0003 (.748)
Temporary Health Condition	.0123 (.225)	-.0269 (.351)	.0600 (.743)
Actual Experience During Temporary Health Condition	.0176 (1.402)	.0170 (1.043)	.0172 (.662)
Actual Experience During Temporary Health Condition Squared	-.0004 (.780)	-.0004 (.673)	-.0004 (.217)
Actual Experience After Temporary Health Condition	.0099 (1.808)	-.0011 (.156)	.0272 (2.651)
Actual Experience After Temporary Health Condition Squared	.0001 (.296)	.0004 (1.424)	-.0006 (1.135)
Constant	.9832 (18.966)	.9565 (13.373)	1.4474 (19.384)
Lambda (λ)	.023 (2.801)	.038 (3.140)	.005 (.511)
N	471299	235368	235931

TABLE 6: REGRESSION RESULTS WITH HECKMAN CORRECTION, ACTUAL EXPERIENCE
DEPENDENT VARIABLE: NATURAL LOG OF HOURLY WAGES
(ABSOLUTE VALUE OF z-STATISTICS IN PARENTHESIS)

Independent Variables	**All**	**Male**	**Female**
Male	.3679 (46.384)	___	___
Black	-.0527 (5.047)	-.1110 (6.848)	-.0109 (.820)
Other Race	-.0299 (1.460)	-.0968 (3.271)	.0348 (1.245)
Age	.0044 (1.902)	.0251 (7.497)	-.0194 (5.839)
Age Squared	-.0002 (6.889)	-.0004 (10.183)	.00006 (1.423)
Years of Education	.0729 (57.415)	.0674 (38.991)	.0804 (42.702)
Married	.0238 (2.449)	.0574 (3.669)	-.0026 (.211)
Actual Experience While Healthy	.0140 (11.443)	.0074 (4.030)	.0164 (9.276)
Actual Experience When Healthy Squared	-.0001 (1.853)	.0001 (1.355)	-.0001 (1.897)
Permanent Health Condition: Age<30	.1161 (2.778)	.0670 (1.142)	.1254 (2.064)
Actual Exp. After Onset of Perm. Condition: Age<30	-.0263 (1.422)	-.0015 (.065)	-.0356 (.443)
Actual Exp. After Onset of Perm. Condition Squared: Age<30	.0006 (.694)	-.0002 (.208)	-.0014 (.195)
Permanent Health Condition: Age 30-45	-.0251 (.644)	-.0292 (.437)	-.0324 (.695)
Actual Exp. After Onset of Perm. Condition: Age 30-45	.0074 (.757)	-.0018 (.125)	.0198 (1.513)
Actual Exp. After Onset of Perm. Condition Squared: Age 30-45	-.0007 (1.533)	-.00001 (.019)	-.0018 (2.741)
Permanent Health Condition: Age 45+	-.0911 (2.321)	-.0661 (1.067)	-.1340 (2.648)
Actual Exp. After Onset of Perm. Condition: Age 45 +	.0077 (1.496)	-.0060 (.837)	.0146 (1.809)
Actual Exp. After Onset of Perm. Condition Squared: Age 45 +	-.0002 (1.583)	-.0002 (.992)	-.0005 (1.846)
Temporary Health Condition	-.0049 (.096)	-.0346 (.488)	.0326 (.437)
Actual Exp. During Temp. Health Condition	.0067 (1.199)	.0074 (1.107)	.0085 (.673)
Actual Exp. During Temp. Health Condition Squared	.0003 (2.670)	.0002 (1.504)	.0004 (1.903)
Actual Exp. After Temp. Health Condition	.0115 (2.214)	.0003 (.044)	.0289 (2.959)
Actual Exp. After Temp. Health Condition Squared	.00002 (.091)	.0004 (1.321)	-.0007 (1.259)
Constant	.982 (18.917)	.957 (13.302)	1.4465 (19.359)
Lambda (λ)	.024 (2.968)	.040 (3.274)	.006 (.529)
N	471299	235368	235931

TABLE 7: MEANS FROM HRS WAVE 1 DATA

ANNUAL HOURS

Variables	All	Males	Females
Male	.51	---	---
Age	43.72	43.69	43.76
Black	.17	.15	.18
Other Race	.04	.04	.03
Years of Education	12.22	12.12	12.33
Married	.78	.81	.75
Number of Kids Under Age 7	.22	.27	.17
Any Kids Under 17	.40	.41	.39
Potential Experience if No Health Condition	25.37	25.22	25.51
Potential Experience, Prior to Onset of Health Condition	24.51	25.65	24.33
Permanent Health Condition	.08	.09	.07
Age of Onset of Permanent Health Condition, if Applicable	41.17	41.02	41.36
Potential Experience, After Onset of Permanent Condition	7.85	8.66	6.77
Temporary Health Condition	.03	.04	.03
Age of Onset Of Temporary Health Condition, if Applicable	39.81	39.83	39.78
Potential Experience, During Temporary Health Condition	1.68	1.51	1.91
Age at End of Temporary Health Condition	41.02	40.81	41.33
Potential Experience, After Temporary Health Condition	10.31	10.98	9.34
Annual Hours Worked	2049.42	2240.46	1852.92
N	29186	14799	14387

TABLE 8: OLS (WITH CLUSTER CORRECTION) REGRESSION RESULTS, ACTUAL EXPERIENCE
DEPENDENT VARIABLE: ANNUAL HOURS WORKED
(ABSOLUTE VALUE OF t-STATISTICS IN PARENTHESIS)

Independent Variables	All		Males		Females	
Male	378.525 (32.296)	379.173 (32.328)	---	---	---	---
Black	-86.561 (5.871)	-86.486 (5.869)	-117.274 (5.514)	-117.471 (5.520)	-66.923 (3.255)	-66.204 (3.224)
Other Race	6.111 (.194)	6.378 (.203)	-72.211 (1.693)	-71.997 (1.694)	73.754 (1.623)	73.825 (1.625)
Age	17.566 (6.326)	15.148 (5.261)	17.665 (4.725)	18.236 (4.628)	17.705 (4.216)	15.987 (3.741)
Age Squared	-.317 (9.116)	-.290 (8.130)	-.287 (6.239)	-.293 (6.150)	-.365 (6.858)	-.346 (6.441)
Years of Education	2.840 (2.055)	2.718 (1.321)	4.122 (1.554)	4.249 (1.598)	-.218 (.068)	-.267 (.083)
Married	-43.298 (3.586)	-42.491 (3.522)	79.787 (4.296)	79.616 (4.285)	-134.412 (8.540)	-134.895 (8.587)
Number of Kids Age Under 7	5.068 (.628)	5.382 (.667)	-15.935 (1.501)	-16.216 (1.521)	.064 (.005)	.092 (.007)
Any Kids Under Age 17	-32.391 (2.779)	-30.594 (2.617)	5.551 (.337)	6.074 (.367)	-75.918 (4.481)	-72.271 (4.214)
Actual Experience While Healthy	5.158 (7.797)	8.550 (5.950)	.618 (.663)	-.196 (.093)	9.802 (10.387)	13.276 (6.647)
Actual Experience While Healthy Squared		-.101 (2.722)		.022 (.431)		-.115 (2.107)
Permanent Health Condition	-40.222 (1.683)	-38.911 (1.392)	-74.557 (2.389)	-67.496 (1.835)	-1.248 (.045)	-13.132 (.294)
Actual Experience After Onset of Permanent Condition	2.150 (.729)	2.027 (.297)	1.494 (.446)	-.337 (.041)	-.072 (.033)	6.108 (.435)
Actual Experience After Onset of Permanent Condition Squared		.007 (.026)		.053 (.198)		-.283 (.415)
Temporary Health Condition	42.281 (.727)	92.159 (1.492)	-8.483 (.108)	62.802 (.784)	82.936 (.969)	165.477 (1.636)
Actual Experience During Temporary Health Condition	-2.373 (.574)	-24.284 (1.750)	-6.594 (1.468)	-39.529 (2.676)	17.251 (1.335)	-32.102 (.862)
Actual Experience During Temporary Health Condition Squared		.911 (1.791)		1.310 (2.424)		3.560 (1.502)
Actual Experience After Temporary Health Condition	7.811 (2.907)	18.682 (2.667)	1.071 (.368)	4.954 (.653)	19.608 (2.907)	44.382 (2.825)
Actual Experience After Temporary Health Condition Squared		-.451 (1.609)		-.095 (.330)		-1.302 (1.652)
Constant	1710.93 (30.074)	1746.58 (29.954)	1976.24 (26.941)	1966.02 (25.698)	1869.93 (21.834)	1893.05 (21.863)
N	30157	30157	15317	15317	14840	14840

TABLE 9: OLS (WITH CLUSTER CORRECTION) REGRESSION RESULTS, ACTUAL EXPERIENCE
DEPENDENT VARIABLE: ANNUAL HOURS WORKED
(ABSOLUTE VALUE OF t-STATISTICS IN PARENTHESIS)

Independent Variables	**BY AGE of ONSET**					
	All		Males		Females	
Male	378.757 (32.341)	379.206 (32.341)	____	____	____	____
Black	-86.729 (5.866)	-86.743 (5.869)	-117.077 (5.486)	-117.738 (5.521)	-67.375 (3.270)	-66.627 (3.237)
Other Race	6.346 (.201)	8.020 (.255)	-72.889 (1.712)	-70.815 (1.661)	73.762 (1.626)	73.623 (1.623)
Age	17.367 (6.225)	15.033 (5.196)	17.574 (4.677)	18.996 (4.795)	17.854 (4.224)	15.749 (3.670)
Age Squared	-.314 (9.006)	-.289 (8.051)	-.284 (6.141)	-.299 (6.245)	-.367 (6.864)	-.344 (6.368)
Years of Education	2.854 (1.389)	2.548 (1.240)	4.111 (1.550)	4.021 (1.515)	-.323 (.100)	-.468 (.146)
Married	-43.447 (3.599)	-42.740 (3.544)	79.791 (4.298)	79.297 (4.272)	-134.592 (8.557)	-135.318 (8.619)
Number of Kids Under Age 7	5.091 (.603)	5.203 (.644)	-15.896 (1.498)	-16.864 (1.586)	-.080 (.006)	.331 (.026)
Any Kids Under Age 17	-32.424 (2.781)	-30.334 (2.595)	5.360 (.325)	6.543 (.396)	-75.942 (4.483)	-71.996 (4.202)
Actual Experience While Healthy	5.176 (7.716)	8.429 (5.778)	.338 (.357)	1.791 (.830)	9.975 (10.400)	14.062 (7.038)
Actual Experience While Healthy Squared		-.095 (2.529)		.058 (1.114)		-.135 (2.507)
Permanent Health Condition: Age <30	5.735 (.095)	22.382 (.327)	-73.429 (1.020)	-88.570 (1.069)	81.572 (.757)	135.704 (1.141)
Actual Exp. After Onset of Perm. Condition: Age<30	-2.477 (.348)	-24.598 (1.131)	4.869 (.692)	-9.526 (.380)	-22.766 (1.165)	-129.204 (1.233)
Actual Exp. After Onset of Perm. Condition Squared: Age < 30		1.018 (1.254)		.704 (.760)		9.308 (1.016)
Permanent Health Condition: Age 30-45	10.490 (.154)	-44.451 (.537)	-89.285 (.764)	-217.947 (1.542)	70.072 (.851)	55.897 (.549)
Actual Exp. After Onset of Perm. Condition: Age 30-45	-3.040 (.548)	22.422 (1.265)	3.803 (.458)	46.378 (1.766)	-11.604 (1.490)	4.444 (.184)
Actual Exp. After Onset of Perm. Condition Squared: Age 30-45		-1.306 (1.757)		-1.957 (1.870)		-.889 (.840)
Permanent Health Condition: Age 45 +	-51.664 (1.108)	-90.517 (1.475)	-118.105 (1.599)	-196.918 (1.994)	-37.191 (.614)	-17.224 (.216)
Actual Exp. After Onset of Perm. Condition: Age 45+	.466 (.206)	7.968 (1.106)	2.251 (.713)	16.334 (1.684)	2.141 (.559)	-2.114 (.175)
Actual Exp. After Onset of Perm. Condition Squared: Age 45+		-.224 (1.185)		-.388 (1.670)		.142 (.399)
Temporary Health Condition	34.044 (.564)	37.700 (.616)	-6.958 (.085)	-5.409 (.065)	64.575 (.732)	78.106 (.870)
Actual Exp. During Temp. Health Condition	-1.917 (.487)	-4.292 (.965)	-5.700 (1.332)	-7.113 (1.578)	14.583 (1.155)	10.400 (.737)
Actual Exp. During Temp. Health Condition Squared		.051 (.454)		.066 (.586)		-.179 (.579)
Actual Exp. After Temp. Health Condition	7.737 (2.887)	15.767 (2.388)	.800 (.276)	.399 (.055)	20.009 (2.974)	38.929 (2.703)
Actual Exp. After Temp. Health Condition Squared		-.369 (1.363)		.022 (.078)		-1.131 (1.498)
Constant	1713.29 (29.988)	1750.48 (29.898)	1977.04 (26.819)	1957.96 (25.401)	1868.71 (21.713)	1898.028 (21.868)
N	30157	30157	15317	15317	14840	14840

TABLE 10: REGRESSION RESULTS WITH HECKMAN CORRECTION
DEPENDENT VARIABLE: ANNUAL HOURS WORKED
(ABSOLUTE VALUE OF z-STATISTICS IN PARENTHESIS)

Independent Variables	All	Males	Females
Male	388.619 (46.827)	___	___
Black	-85.254 (7.819)	-115.678 (7.205)	-65.254 (4.418)
Other Race	.794 (.037)	-78.6662 (2.699)	75.381 (2.441)
Age	16.967 (6.578)	22.070 (6.381)	15.673 (3.970)
Age Squared	-.307 (9.835)	-.326 (7.881)	-.345 (7.115)
Years of Education	3.566 (2.693)	5.430 (3.172)	-.122 (.058)
Married	-49.140 (4.744)	56.916 (3.544)	-126.937 (9.351)
Number of Kids Age Under 7	7.747 (1.196)	-9.861 (1.166)	5.814 (.557)
Any Kids Under Age 17	-40.912 (3.994)	-6.648 (.456)	-79.639 (5.459)
Actual Experience While Healthy	8.679 (7.172)	-.592 (.347)	13.757 (7.298)
Actual Experience While Healthy Squared	-.107 (3.244)	.024 (.557)	-.119 (2.064)
Permanent Health Condition	-41.334 (1.880)	-97.536 (3.211)	14.135 (.430)
Actual Experience After Onset of Permanent Condition	4.031 (.689)	4.195 (.576)	4.632 (.430)
Actual Experience After Onset of Permanent Condition Squared	-.059 (.798)	-.072 (.266)	-.242 (.476)
Temporary Health Condition	84.318 (.137)	36.083 (.632)	180.049 (2.028)
Actual Experience During Temporary Health Condition	-27.638 (2.132)	-41.153 (2.578)	-36.584 (1.282)
Actual Experience During Temporary Health Condition Squared	1.034 (1.996)	1.367 (2.277)	3.663 (1.887)
Actual Experience After Temporary Health Condition	18.572 (3.286)	3.885 (.569)	47.215 (4.198)
Actual Experience After Temporary Health Condition Squared	-.458 (1.965)	-.085 (.315)	-1.373 (2.346)
Constant	1678.12 (29.751)	1854.73 (25.613)	1878.93 (21.775)
Lambda (λ)	11.72 (1.319)	15.59 (1.248)	9.42 (.074)
N	471299	235368	235931

TABLE 11: REGRESSION RESULTS WITH HECKMAN CORRECTION, ACTUAL EXPERIENCE
DEPENDENT VARIABLE: ANNUAL HOURS WORKED
(ABSOLUTE VALUE OF z-STATISTICS IN PARENTHESIS)

Independent Variables	**BY AGE of ONSET**		
	All	Males	Females
Male	388.752 (46.870)	———	———
Black	-85.671 (7.849)	-115.532 (7.187)	-65.979 (4.464)
Other Race	2.2091 (.104)	-77.598 (2.661)	75.929 (2.457)
Age	16.825 (6.484)	22.806 (6.534)	15.584 (3.934)
Age Squared	-.305 (9.688)	-.331 (7.942)	-.344 (7.059)
Years of Education	3.429 (2.590)	5.198 (3.039)	-.238 (.114)
Married	-49.342 (4.764)	56.945 (3.545)	-127.248 (9.374)
Number of Kids Under Age 7	7.478 (1.154)	-10.285 (1.217)	5.658 (.543)
Any Kids Under Age 17	-40.969 (3.999)	-6.393 (.438)	-79.829 (5.472)
Actual Experience While Healthy	8.625 (6.754)	-2.162 (1.192)	14.494 (7.351)
Actual Experience While Healthy Squared	-.103 (2.991)	.059 (1.296)	-.142 (2.374)
Permanent Health Condition: Age <30	29.991 (.691)	-93.317 (1.617)	148.688 (2.217)
Actual Exp. After Onset of Perm. Condition: Age<30	-11.760 (.605)	9.982 (.428)	-119.692 (1.302)
Actual Exp. After Onset of Perm. Condition Squared: Age < 30	.530 (.622)	-.0276 (.029)	8.365 (1.019)
Permanent Health Condition: Age 30-45	-29.777 (.722)	-235.047 (3.491)	88.090 (1.685)
Actual Exp. After Onset of Perm. Condition: Age 30-45	16.587 (1.616)	45.156 (3.097)	-4.069 (.278)
Actual Exp. After Onset of Perm. Condition Squared: Age 30-45	-1.038 (2.142)	-1.874 (2.828)	-.447 (.621)
Permanent Health Condition: Age 45 +	-89.640 (2.171)	-188.777 (2.997)	-27.149 (.487)
Actual Exp. After Onset of Perm. Condition: Age 45+	7.955 (1.470)	13.087 (1.797)	1.203 (.136)
Actual Exp. After Onset of Perm. Condition Squared: Age 45+	-.229 (1.518)	-.314 (1.650)	.106 (.359)
Temporary Health Condition	23.077 (.439)	-35.353 (.507)	87.881 (1.074)
Actual Exp. During Temp. Health Condition	-4.758 (.819)	-7.305 (1.112)	7.882 (.573)
Actual Exp. During Temp. Health Condition Squared	.050 (.513)	.067 (.596)	-.176 (.799)
Actual Exp. After Temp. Health Condition	15.231 (2.822)	-.915 (.140)	41.367 (3.860)
Actual Exp. After Temp. Health Condition Squared	-.365 (1.599)	.039 (.147)	-1.190 (2.068)
Constant	1678.03 (29.692)	1844.43 (24.910)	1879.611 (21.763)
Lambda (λ)	13.07 (1.47)	16.32 (1.30)	9.32 (.74)
N	471299	235368	235931

TABLE 12: LABOR FORCE PARTICIPATION RESULTS, ACTUAL EXPERIENCE
DEPENDENT VARIABLE: WORK
(ABSOLUTE VALUE OF z-STATISTICS IN PARENTHESIS)

Independent Variables	All	Males	Females
Male	.095 (13.961)	___	___
Black	.019 (2.196)	.021 (1.669)	.005 (.466)
Other Race	-.022 (.196)	-.008 (.327)	-.042 (1.670)
Age	.028 (11.043)	.021 (6.221)	.029 (6.928)
Age Squared	-.0004 (13.223)	-.0003 (7.346)	-.0004 (8.852)
Years of Education	.006 (5.647)	.006 (5.002)	.005 (2.959)
Married	-.009 (1.085)	.082 (6.463)	-.065 (5.757)
Number of Kids Age Under 7	-.037 (7.775)	-.007 (1.076)	-.077 (10.487)
Any Kids Under Age 17	-.035 (4.280)	-.019 (1.664)	-.026 (2.169)
Actual Experience While Healthy	.002 (1.710)	-.014 (10.362)	.021 (13.617)
Actual Experience While Healthy Squared	-.0002 (6.336)	.0002 (4.885)	-.001 (15.488)
Permanent Health Condition	.038 (2.072)	.038 (1.509)	.027 (.984)
Actual Experience After Onset of Permanent Condition	.003 (.512)	.004 (.718)	.026 (2.568)
Actual Experience After Onset of Permanent Condition Squared	-.0003 (.512)	-.0002 (.696)	-.001 (1.901)
Temporary Health Condition	.148 (3.188)	.186 (3.028)	.054 (.739)
Actual Experience During Temporary Health Condition	-.006 (.517)	-.012 (.954)	.033 (1.250)
Actual Experience During Temporary Health Condition Squared	-.0002 (.517)	-.0001 (.192)	-.003 (1.661)
Actual Experience After Temporary Health Condition	-.004 (.839)	-.009 (1.387)	.014 (1.190)
Actual Experience After Temporary Health Condition Squared	.00001 (.030)	.0001 (.348)	-.001 (1.095)
Constant	-2.714 (11.780)	-2.515 (10.709)	-2.66 (9.615)
N	471299	235368	235931

**Included in the probit equation are date dummy variables (one each for 1941-1993), controlling for the year of the person-observation